

Volatility of Ultrafine Particulate Matter Emissions from Compressed Natural Gas Vehicles

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PIER Transportation Research
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Fact Sheet

The Issue

Emissions from motor vehicles in urban environments are the dominant source of ultrafine particulate matter that medical studies have linked to adverse health outcomes. Limited research has been done to characterize compressed natural gas mass emissions and practically no work focused on the determination of the volatility of different-sized particulate matter from natural gas engines.

Project Description

The research objective is to characterize the toxicity of non-volatile and semi-volatile fractions of ultrafine particulate matter emissions from compressed natural gas vehicles. For this project, new engines meeting stringent 2010 standards for particulate matter and oxides of nitrogen will be tested. Researchers will collect samples of the total ultrafine particulate matter and samples of non-volatile particulate matter to identify and measure quantities of these particles.

PIER Program Objectives and Anticipated Benefits for California

This information will help evaluate engine technologies, including compressed natural gas, and emission control technologies that will best protect human health. This information will, in turn, reduce the deployment barriers and help expand the availability of vehicles capable of using alternative fuels. This data will inform technical developers as to the volatility and toxicity of ultrafine particulate matter and will allow a better understanding of its formation, possible health effects, and control strategies.

CNG Bus on Portable Dynamometer



Source: West Virginia University

Project Specifics

Contract Number: 500-06-043
Contractor: California Air Resources Board
Contract Amount: \$350,000
Contract Term: June 2007 to December 2010

For more information, please contact:

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